

CLAIM AMENDMENTS:

Pending Claims

Claim 1 (Currently Amended): A system comprising a packaging machine, a zipper processing machine, and a zipper material that travels first through said zipper processing machine and then through said packaging machine, wherein:

said zipper material comprises a first zipper strip interlocked with a second zipper strip;

said packaging machine comprises a joining station whereat a respective portion of said first zipper strip is joined to a respective portion of a packaging material during a first portion of each work cycle, and means for advancing said respective portion of said packaging material during a second portion but not said first portion of each work cycle, each advance being equal in distance to N package lengths, where N is a positive integer greater than unity; and

said zipper processing machine comprises a slider insertion device upstream of said joining station and a zipper accumulator take-up device for accumulating some of said zipper material in a zone between said slider insertion device and said joining station while a portion of said zipper material at said joining station is stationary.

Claim 2 (Currently Amended): The system as recited in claim 1, wherein said zipper accumulator take-up device comprises a linear accumulator.

Claim 3 (Original): The system as recited in claim 2, wherein said linear accumulator comprises a linear actuator and a roller that is displaceable between extended and retracted positions by said linear actuator, a portion of said zipper material being wrapped around a segment of a circumference of said roller.

Claim 4 (Original): The system as recited in claim 3, wherein said linear actuator comprises a ball screw.

Claim 5 (Currently Amended): The system as recited in claim 1, wherein said zipper accumulator take-up device comprises a rotary accumulator.

Claim 6 (Original): The system as recited in claim 5, wherein said rotary accumulator comprises a rotary actuator, a pivotable arm and a roller pivotably mounted to a distal end of said arm, said arm being pivotable between extended and retracted angular positions by said rotary actuator, a portion of said zipper material being wrapped around a segment of a circumference of said roller.

Claim 7 (Currently Amended): The system as recited in claim 1, further comprising a controller programmed to perform the following steps:

activating said joining station to join a respective portion of said zipper material to a respective portion of said packaging material during a first portion of each work cycle; and

activating said advancing means to advance said respective portion of said packaging material during a second portion of each work cycle.

Claim 8 (Currently Amended): The system as recited in claim 7, wherein said controller is further programmed to activate said zipper accumulator take-up device to extend in $(N - 1)$ discrete steps during said first portion of each work cycle and to retract during said second portion of each work cycle, one portion of said zipper material located in said zipper processing machine being advanced during each extension of said zipper accumulator take-up device, while another portion of said zipper material located in said packaging machine is not advancing.

Claim 9 (Currently Amended): The system as recited in claim 7, wherein said zipper processing machine further comprises a clamping device located downstream from said zipper accumulator take up device.

Claim 10 (Currently Amended): The system as recited in claim 9, wherein said controller is further programmed to activate said clamping device and said zipper accumulator take-up device in sequence during said first portion of each work cycle, said zipper material being clamped to prevent zipper pullback during accumulation.

Claim 11 (Original): The system as recited in claim 1, wherein said zipper processing machine further comprises tension control means for maintaining a substantially constant tension of said zipper material in a zone from said slider insertion device to said joining station when zipper material in said zone is not advancing.

Claim 12 (Original): The system as recited in claim 8, wherein said zipper processing machine further comprises an ultrasonic horn arranged to deform a confronting portion of said zipper material when said horn is activated, wherein said controller is further programmed to activate said horn N times during said first portion of each work cycle.

Claim 13 (Original): The system as recited in claim 8, wherein said controller is further programmed to activate said slider insertion device N times during said first portion of each work cycle.

Claim 14 (Currently Amended): The system as recited in claim [[1]] 7, wherein said packaging machine further comprises N thermoforming dies for thermoforming respective sections of said packaging material into respective pockets during said second portion of each work cycle, said thermoforming dies being arranged in sequence and located upstream of said joining station.

Claims 15-40 (Canceled).

Claim 41 (New): The system as recited in claim 1, further comprising a controller programmed to perform the following steps:

activating said zipper accumulator to accumulate some of said zipper material during a first portion of each work cycle; and

activating said advancing means to advance said packaging material during a second portion of each work cycle.

Claim 42 (New): The system as recited in claim 41, wherein said zipper accumulator extends during said first portion of each work cycle to accumulate zipper material and retracts during said second portion of each work cycle, one portion of said zipper material located in said zipper processing machine being advanced during each extension of said zipper accumulator, while another portion of said zipper material located in said packaging machine is not advancing.

Claim 43 (New): The system as recited in claim 41, wherein said zipper processing machine further comprises a clamping device located downstream from said zipper accumulator, wherein said clamping device clamps zipper material during said first portion of each work cycle.

Claim 44 (New): The system as recited in claim 1, wherein said zipper accumulator comprises an effector that contacts said zipper material and an actuator that actuates retraction and extension of said effector, said effector being able to retract faster than said advancing means draw said zipper material.

Claim 45 (New): The system as recited in claim 44, wherein retraction of said effector during each work cycle is completed before completion of the draw of said zipper material

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by said advancing means.